نام و نام خانوادگی ..... پاسخنامه تشریحی تکلیف شماره ..۱۵.. کلاس .....A.....

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$T=\frac{2\pi}{|a|}=\frac{2\pi}{2}=AC$

$x=0 \rightarrow \tan\frac{\pi}{4}=1=BH$

$S_{AB\hat{C}}=\frac{1\times\frac{\pi}{2}}{2}=\frac{\pi}{4}$

(۲) ✓

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$\frac{4}{9}-\frac{2}{3}(\sin\alpha)-\frac{1}{4}(1-\sin^2\alpha)=0 \rightarrow \frac{1}{4}\sin^2\alpha-\frac{2}{3}\sin\alpha+\frac{7}{36}=0$

$\rightarrow 9\sin^2\alpha-24\sin\alpha+7=0 \rightarrow \sin^2\alpha-24\sin\alpha+63=0 \rightarrow (\sin\alpha-3)(\sin\alpha-21)=0$

$\rightarrow \begin{cases}\frac{3}{9}=\frac{1}{3}=\sin\alpha \ \checkmark \rightarrow \cos\alpha=\frac{2\sqrt{2}}{3} \rightarrow 1+\tan^2\alpha=\frac{9}{8} \rightarrow \tan\alpha=\frac{\sqrt{2}}{4} \\ \frac{21}{9}=\frac{7}{3}=\sin\alpha \ \text{غ ق ق}\end{cases}$

(۲) ✓

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$\log\left(-\frac{\sin\alpha}{\cos\alpha}\right)=\log 3 \rightarrow -\frac{\sin\alpha}{\cos\alpha}=3 \rightarrow \sin\alpha=-3\cos\alpha$

$\sin^2\alpha+\cos^2\alpha=1 \rightarrow 10\cos^2\alpha=1 \rightarrow \cos\alpha=\frac{\sqrt{10}}{10} \quad \sin\alpha=+\frac{3\sqrt{10}}{10}$

$\sin\alpha-\cos\alpha=+\frac{4\sqrt{10}}{10}=+\frac{2\sqrt{10}}{5}$

(۱/۵)

L.g $\sin\alpha \rightarrow \sin\alpha>0$

L.g $-C.S\alpha \quad C.S\alpha<0$

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$\sin^4\alpha+1-\sin^2\alpha=\frac{4}{5} \rightarrow \sin^4\alpha-\sin^2\alpha+\frac{1}{5}=0 \rightarrow 5\sin^4\alpha-5\sin^2\alpha+1=0$

$\rightarrow \Delta=25-4(5)(1)=5 \rightarrow \sin^2\alpha \begin{cases}\frac{5+\sqrt{5}}{2} \rightarrow \cos^2\alpha \begin{cases}\frac{\sqrt{5}-3}{2} \ \text{غ ق ق} \\ \frac{-\sqrt{5}-3}{2} \ \text{غ ق ق}\end{cases} \\ \frac{5-\sqrt{5}}{2}\end{cases}$

$(1-\sin^2\theta)^2+C.S^2\theta=\frac{4}{5}$

$(1-C.S^2\theta)^2+C.S^2\theta=\frac{4}{5} \qquad C.S^4\theta-C.S^2\theta=-\frac{1}{5}$

$C.S^4\theta-(1-\sin^2\theta)=-\frac{1}{5} \rightarrow C.S^4\theta+\sin^2\theta=\frac{4}{5}$

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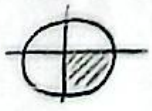
$\frac{3\sin x+\sin x\cos x}{2\sin^2 x}<0 \rightarrow \frac{3+\cos x}{2\sin x}<0 \rightarrow \sin x<0$

$\frac{\sin^2 x-1}{\cos x}>0 \rightarrow -\frac{\cos^2 x}{\cos x}=\cos x<0$

$\cos x<0 \ , \ \sin x<0 \rightarrow$ ناحیه سوم



(۱/۵)

$2\cos x + 2\sin x = 0 \rightarrow \tan x = -\frac{2}{2}$, $\cot x = -\frac{2}{2}$

$\tan x + \cot x \rightarrow -\frac{2}{2} - \frac{2}{2} = -\frac{12}{6}$

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(۲) ✓

$\frac{\sqrt{1+\cos 10^\circ}}{\cos 5^\circ + \cos 10^\circ} = \frac{\sqrt{2\cos^2 5^\circ - 1 + 1}}{2\cos^2 5^\circ - 1 + \cos 5^\circ} = \frac{\sqrt{2}\cos 5^\circ}{(\cos 5^\circ + 1)(2\cos 5^\circ - 1)} = \sqrt{2}\cos 20^\circ$

$\sin 5^\circ + \sin 1.$

$\sin(30^\circ + 20^\circ) + \sin(30^\circ - 20^\circ) \rightarrow \frac{\sqrt{2}\cos 30^\circ}{2\sin 30^\circ \cos 20^\circ} = \sqrt{2}$

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$\cos 10 \times \cos 20 \times \cos 40 \times \frac{\sin 8}{\sin 8} = \frac{1}{8}\frac{\sin 80}{\sin 10} = \frac{1}{8}\cot 10$

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✓ (۲)

$\sin\alpha = 2 - 2\cos\alpha \rightarrow \sin^2\alpha + \cos^2\alpha = 4 + 9\cos^2\alpha - 12\cos\alpha + \cos^2\alpha = 1$

$\rightarrow 10\cos^2\alpha - 12\cos\alpha + 4 = 1 = t$

$9\cos^2\alpha - 12\cos\alpha = 9(2\cos^2\alpha - 1) - 12\cos\alpha = 10\cos^2\alpha - 12\cos\alpha - 9 = t - 9 = -\frac{8}{9}$

(۲) ✓

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$2\sin\hat{B}\sin\hat{C} = 1 + \cos\hat{A} \rightarrow \cos\hat{A} = 2\sin\hat{B}\sin\hat{C} - 1$

$4\sin^2\hat{B}\sin^2\hat{C} - 4\sin\hat{B}\sin\hat{C} + 1 = \cos^2 A = 1 - \sin^2 A$

$4\sin^2\hat{B}\sin^2\hat{C} - 4\sin\hat{B}\sin\hat{C} + \sin^2 A = 0$

$\sin^2\frac{A}{2} = \frac{1+\cos A}{2}$

$2\sin B\sin C = 1 + \cos A \xrightarrow{A+B+C=\pi}$

$2\sin B\sin C = 1 + \cos(\pi - (B+C))$

$2\sin B\sin C = 1 - \cos(B+C)$

$\cos(B-C) = 1$

$\rightarrow B = C$

$180 - (72+72) = 36$

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